

What is claimed is:

1. A switching node, comprising:
  - a. a switching matrix, and
  - b. a controller to control said switching matrix, said controller configured to set up at least one group of virtual circuits to respective one or more destinations as a virtual circuit bunch.
2. The switching node of claim 1 in which said switching node is an ATM switch.
3. The switching node of claim 1 in which said controller sets up a virtual circuit bunch by sending a message to another controller specifying one or more destinations and a respective number of virtual circuits to go to each destination.
4. The switching node of claim 1 in which said controller keeps all virtual circuits of a virtual circuit bunch to a single destination alive by sending or receiving a refresh packet on less than all of the virtual circuits going to said single destination.

(5.) The switching node of claim 4 in which a single refresh packet is used to keep all virtual circuits of a virtual circuit bunch to a single destination alive.

6. The switching node of claim 1 in which said controller is configured to assign digital information from a source to one of a plurality of virtual circuits of a virtual circuit bunch.

7. The switching node of claim 6 in which the assignment of digital information from a source to one of a plurality of virtual circuits of a virtual circuit bunch is done without assigning said one of a plurality of virtual circuits to a connection.

8. The switching node of claim 1 in which the virtual circuits of a virtual circuit bunch going to a single destination may be routed over different paths.

9. The switching node of claim 1 in which the controller is configured to retransmit digital data from an assigned virtual circuit identifier (VCI) to an alternate VCI of the same or different port going to the same destination when a cell interleaving problem occurs.

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10. Computer apparatus for connection to a switching node comprising:

- a. a bus;
  - b. an input device, connected to said bus;
  - 5 c. a communications interface connected to said bus;
  - d. a processor, connected to said bus, said processor configured to receive an input from a user over said input device and to generate a single request to said switching node to establish a plurality of virtual circuits to respective one or more destinations as a virtual circuit bunch.
- 10

11. In a digital switching network having a plurality of interconnected nodes, a method of allocating virtual circuits, comprising the step of:

- a. providing an element for performing the step of establishing a plurality of virtual circuits from one node to at least one other node as a virtual circuit bunch in response to a single request.
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12. The method of claim 11, in which the step of establishing a plurality of virtual circuits from one node to at least one other node as a virtual circuit bunch includes setting up switching tables when at least one subsequent node has acknowledged the request.

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13. The method of claim 11, in which said request specifies a plurality of destinations.

14. The method of claim 13, in which said request also specifies the number of virtual circuits to be established to each destination.

15. The method of claim 11, in which the request specifies the level of service to be provided by one or more virtual circuits.

16. The method of claim 11, further comprising the step of establishing an end to end virtual circuit using at least one virtual circuit of said virtual circuit bunch.

17. A method of allocating virtual circuits in a switching system, comprising the steps of:

a. identifying virtual circuits at a node going to a common destination node; and

b. aggregating those virtual circuits into a virtual circuit bunch.

18. A method of providing a fast connect service in a digital switching network, comprising the step of:

a. assigning a packet to a virtual circuit of a virtual circuit bunch.

19. The method of claim 18 in which a packet is assigned a VCI without setting up a connection.

20. The switching node of claim 1 in which said controller is configured to assign digital information from a source to one of a plurality of virtual circuits of a virtual circuit bunch in accordance with a user specified policy.

21. A system for the transmission of digital communications, comprising:

a. a plurality of user communication devices;

b. a plurality of at least partially interconnected switching nodes, each node serviced by a node controller, servicing said user communications devices;

c. in which at least one of said node controllers is configured to set up a group of virtual circuits to respective one or more destinations as a virtual circuit bunch.

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22. The system of claim 21 in which a virtual circuit from a user at one node is connected to a user at a destination node using a virtual circuit from said virtual circuit bunch.

23. A computer program product, comprising:

a. a memory medium, and

b. a computer program stored on said memory medium, said computer program comprising instructions for establishing a plurality of virtual circuits from one node to at least one other node of a switching network as a virtual circuit bunch.

24. A computer program product, comprising:

a. a memory medium, and

b. a computer program stored on said memory medium, said computer program comprising instructions for identifying virtual circuits at a node going to a common destination node; and for aggregating those virtual circuits into a virtual circuit bunch.

25. A computer program product, comprising:

a. a memory medium, and

b. a computer program stored on said memory medium,  
said computer program comprising instructions for  
5 assigning a packet to a virtual circuit of a virtual  
circuit bunch.

26. A computer program product, comprising:

a. a memory medium, and

b. a computer program stored on said memory medium,  
said computer program comprising instructions for  
5 allocating a virtual circuit to all nodes participating  
in a multicast using a virtual circuit bunch.

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27. A method of transferring the computer program  
product of claim 23, comprising the step of transmitting  
said instructions from said memory medium to a  
destination over a communications interface.

28. A method of transferring the computer program  
product of claim 24, comprising the step of transmitting  
said instructions from said memory medium to a  
destination over a communications interface.

29. A method of transferring the computer program product of claim 25, comprising the step of transmitting said instructions from said memory medium to a destination over a communications interface.

30. A method of transferring the computer program product of claim 26, comprising the step of transmitting said instructions from said memory medium to a destination over a communications interface.

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A4